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HATANO MICHIAKA**(54) SEMICONDUCTOR LIGHT EMITTING ELEMENT
AND MANUFACTURE THEREOF**

(57) Abstract:

PURPOSE: To obtain a high intensity blue light emission by alternately laminating a BP layer and a $\text{GaAl}_{1-x}\text{N}$ ($0 \leq x \leq 1$) layer, and employing a superlattice layer having a sphalerite (ZP) type crystalline structure in the $\text{GaAl}_{1-x}\text{N}$ layer.

CONSTITUTION: A n-type GaP layer 12, a n-type BP layer 13 are formed as buffer layers on a n-type GaP substrate 11, a n-type $\text{Ga}_{0.5}\text{Al}_{0.5}\text{N/BP}$ superlattice layer 14 and a p-type $\text{Ga}_{0.5}\text{Al}_{0.5}\text{N/BP}$ superlattice layer 15 are sequentially formed thereon to form a pn junction, and ohmic electrodes 16, 17 are formed on both side faces of an element. That is, the $\text{GaAl}_{1-x}\text{N}$ layer is alternately laminated with the BP layer to be easily pn-controlled with small ion properties in a ZB structure with substantially the same coupling length to form a superlattice layer to provide a compound semiconductor material of the ZB structure having both nitride direct transition type wide band gap characteristic and BP low ion properties with scarce defect occurring properties. A pn junction is composed of it. Thus, a high intensity blue light emission is obtained.

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